

**Related U.S. Application Data**

7,601,165, and a continuation-in-part of application No. 11/541,505, filed on Sep. 29, 2006, now Pat. No. 7,658,751, and a continuation-in-part of application No. 12/014,399, filed on Jan. 15, 2008, now Pat. No. 7,909,851, and a continuation-in-part of application No. 12/014,340, filed on Jan. 15, 2008, now Pat. No. 7,905,904, and a continuation-in-part of application No. 11/935,681, filed on Nov. 6, 2007, now Pat. No. 7,905,903, and a continuation-in-part of application No. 11/869,440, filed on Oct. 9, 2007, now Pat. No. 7,857,830, and a continuation-in-part of application No. 11/784,821, filed on Apr. 10, 2007, and a continuation-in-part of application No. 11/347,661, filed on Feb. 3, 2006, now Pat. No. 7,749,250, and a continuation-in-part of application No. 11/347,662, filed on Feb. 3, 2006, now abandoned, and application No. 13/311,936, Dec. 6, 2011, which is a continuation-in-part of application No. 12/196,405, filed on Aug. 22, 2008, now Pat. No. 8,128,658, and a continuation-in-part of application No. 12/196,407, filed on Aug. 22, 2008, now Pat. No. 8,137,382, and a continuation-in-part of application No. 12/196,410, filed on Aug. 22, 2008, now Pat. No. 8,118,836, and a continuation-in-part of application No. 13/071,563, filed on Mar. 25, 2011.

**(51) Int. Cl.**

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**(56)****References Cited****U.S. PATENT DOCUMENTS**

3,650,274 A	3/1972	Edwards et al.	5,020,713 A	6/1991	Kunreuther
4,146,022 A	3/1979	Johnson et al.	5,064,431 A	11/1991	Gilbertson et al.
4,158,250 A	6/1979	Ringwald	5,171,274 A	12/1992	Fluckiger et al.
4,275,490 A	6/1981	Bivins	5,190,545 A	3/1993	Corsi et al.
4,388,921 A	6/1983	Sutter et al.	5,199,135 A	4/1993	Gold
4,489,464 A	12/1984	Massari et al.	5,415,658 A	5/1995	Kilpela et al.
4,736,746 A	4/1988	Anderson	5,417,690 A	5/1995	Sennett et al.
4,738,255 A	4/1988	Goble et al.	5,423,824 A	* 6/1995	Akerfeldt et al. .... 606/80
4,751,922 A	6/1988	DiPietropolo	5,441,508 A	8/1995	Gazielly et al.
4,790,850 A	12/1988	Dunn et al.	5,456,721 A	10/1995	Legrand
4,858,603 A	8/1989	Clemow et al.	5,464,426 A	11/1995	Bonutti
4,884,572 A	12/1989	Bays et al.	5,495,974 A	3/1996	Deschenes et al.
4,889,110 A	12/1989	Galline et al.	5,531,759 A	7/1996	Kensey et al.
4,974,488 A	12/1990	Spralja	5,549,630 A	8/1996	Bonutti
			5,573,547 A	11/1996	LeVeen et al.
			5,607,430 A	3/1997	Bailey
			5,649,960 A	7/1997	Pavletic
			5,715,578 A	2/1998	Knudson
			5,725,557 A	3/1998	Gatturna et al.
			5,741,259 A	4/1998	Chan
			5,797,913 A	8/1998	Dambreville et al.
			5,817,095 A	10/1998	Smith
			5,824,066 A	10/1998	Gross
			5,836,955 A	11/1998	Buelna et al.
			5,849,012 A	12/1998	Abboudi
			5,885,294 A	3/1999	Pedlick et al.
			5,935,134 A	8/1999	Pedlick et al.
			5,980,548 A	11/1999	Evans et al.
			5,989,252 A	11/1999	Fumex
			6,036,695 A	3/2000	Smith
			6,041,485 A	* 3/2000	Pedlick et al. .... 29/450
			6,110,207 A	8/2000	Eichhorn et al.
			6,136,010 A	10/2000	Modesitt et al.
			6,334,064 B1	12/2001	Fiddian-Green
			6,368,326 B1	4/2002	Dakin et al.
			6,425,924 B1	7/2002	Rousseau
			6,485,504 B1	11/2002	Johnson et al.
			RE37,963 E	1/2003	Thal
			6,511,498 B1	1/2003	Fumex
			6,514,274 B1	2/2003	Boucher et al.
			6,543,094 B2	4/2003	D'addario
			6,554,852 B1	4/2003	Oberlander
			6,592,609 B1	7/2003	Bonutti
			6,626,930 B1	9/2003	Allen et al.
			6,638,286 B1	10/2003	Burbank et al.
			6,645,211 B2	11/2003	Magana
			6,648,921 B2	11/2003	Anderson et al.
			6,669,707 B1	12/2003	Swanstrom et al.
			6,682,533 B1	1/2004	Dinsdale et al.
			6,712,859 B2	3/2004	Rousseau
			6,730,124 B2	5/2004	Steiner
			6,755,868 B2	6/2004	Rousseau
			6,790,210 B1	9/2004	Cragg et al.
			6,793,595 B1	9/2004	Monnet
			7,083,638 B2	8/2006	Foerster
			7,207,993 B1	4/2007	Baldwin et al.
			7,303,577 B1	12/2007	Dean
			7,481,814 B1	1/2009	Metzger
			7,485,149 B1	2/2009	White
			7,572,275 B2	8/2009	Fallin et al.
			7,601,165 B2	10/2009	Stone
			7,658,751 B2	2/2010	Stone et al.
			7,703,372 B1	4/2010	Shakespeare
			7,749,250 B2	7/2010	Stone et al.
			7,762,942 B2	7/2010	Neisz et al.
			7,790,945 B1	9/2010	Watson, Jr.
			7,828,820 B2	11/2010	Stone et al.
			7,856,698 B2	12/2010	Hays
			7,857,830 B2	12/2010	Stone et al.
			7,867,252 B2 *	1/2011	Criscuolo et al. .... 606/232
			7,905,903 B2	3/2011	Stone et al.
			7,905,904 B2	3/2011	Stone et al.
			7,909,851 B2	3/2011	Stone et al.
			7,914,539 B2	3/2011	Stone et al.
			7,959,650 B2	6/2011	Kaiser et al.
			8,034,090 B2	10/2011	Stone et al.
			8,088,130 B2	1/2012	Kaiser et al.
			8,118,835 B2	2/2012	Weisel et al.
			8,118,836 B2	2/2012	Denham et al.